



Missouri
Department of
Natural Resources

**LONG BRANCH
WBID 0602**

Recreational Use Attainability Analysis

May 2007

PREPARED FOR:
RFP No: B3Z07134
Water Quality Monitoring & Assessment Section
Water Protection Program
Division of Environmental Quality
MISSOURI DEPARTMENT OF NATURAL RESOURCES
P O Box 176
Jefferson City, MO 65102

PREPARED BY:
MEC WATER RESOURCES, INC.
1123 Wilkes Blvd., Ste. 400
Columbia, MO 65201

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet A - Water Body Identification

I. Water Body Information (For water body being surveyed)

| | | | |
|---|--|---------|------|
| Water Body Name (from USGS 7.5' quad): | Long Branch | | |
| Missouri Water Body Identification (WBID) Number: | 602 | | |
| 8-digit HUC: | 10280103 | County: | Linn |
| Upstream Legal Description (from Table H): | 11, 59 N, 20 W | | |
| Downstream Legal Description (from Table H): | Mouth | | |
| Number of sites evaluated | 8 | | |
| List all sites numbers, listed cnsquently upstream to downstream: | 1 - HOLLOW RD 2 - HAVEN RD 3 - HILL RD CROSSING 4 - Hyde RD 5 - HACKER RD 6 - HWY M 7 - DOWNSTREAM HEATH RD 8 - DOWNSTREAM OF IVA RD CROSSING | | |

II. Subsegmentation (fill this section out only in cases where subsegmentation is being proposed)

| | | | |
|---|--------------------------------|--|---|
| LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS) | | | |
| Upstream Coordinates: | | Downstream Coordinates: | |
| UTM X | Y | UTM X | Y |
| HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.) | | | |
| Global Positioning System (GPS) | | Interpolation | |
| Static Mode | | Topographic Map or DRG | |
| Dynamic Mode (Kinematic) | | Aerial Photograph or DOQQ | |
| Precise Positioning Service | | Satellite Imagery | |
| Signal Averaging | | Interpolation Other | |
| Real Time Differential Processing | | | |
| HORIZONTAL ACCURACY ESTIMATE | | | |
| GPS Data Quality | | Interpolation Data Quality | |
| FOM | ± _____ Meters | Source Map Scale: 1:24,000 1:100,000 Other _____ | |
| EPE | ± _____ Feet or ± _____ Meters | | |
| PDOP | | ± _____ Feet or ± _____ Meters | |

III. Discharger Facility Information (list all permitted dischargers on the stream)

| | |
|------------------------------|---------------------------|
| Discharger Facility Name(s): | PSF, South Meadows Finish |
| Discharger Permit Number(s): | MO 0118737 |

IV. UAA Surveyor (please print legibly)

| | | | |
|------------------------|---------------------|-------------------|----------------|
| Name of Surveyor | RENÉE MARTIN | Telephone Number: | (573) 443-4100 |
| Organization/Employer: | MRC Water Resources | | |
| Position: | ENV. SPECIALIST | | |

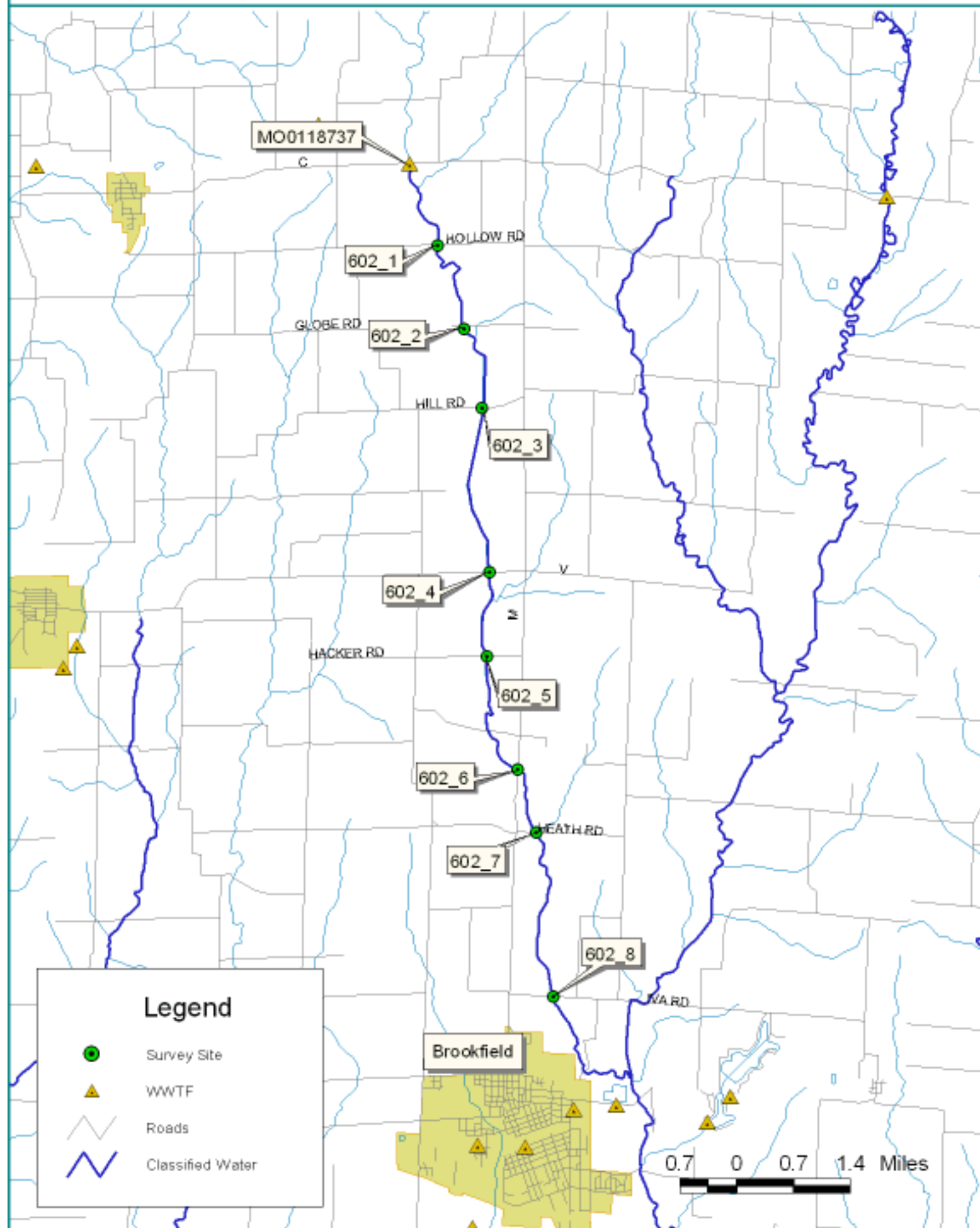
Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Signed: Renée Martin Date: 5/21/07

ARC 5-23-07

AK 5/24/07

Long Branch (0602), Length = 13.0 mi., Permit # MO0118737



WBID# 602
 Site# 1

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

| | |
|--|---|
| Date & Time: <u>21 MAY 2007 07:30</u> | Site Location Description (e.g., road crossing): <u>downstream of Hollow Road crossing</u> |
| Personnel (Data Collectors): <u>JRH + TAH</u> | |
| Current Weather Conditions: <u>Sunny 55°F</u> | Facility Name: <u>PSF, SOUTH MEADOWS FINISH</u> |
| | Permit Number: <u>MO 0118737</u> |
| Weather Conditions for Past 10 days: <u>UNKNOWN</u> | |
| Drought Conditions?: No drought <input type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input checked="" type="checkbox"/> | |

Site Locations:

| LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS) | | | |
|---|-------------------------------------|--|-------------------------------------|
| Site GPS Coordinates: UTM X: <u>15S 0491918</u> | | Y: <u>4421456</u> | |
| HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.) | | | |
| Global Positioning System (GPS) | | Interpolation | |
| Static Mode | <input checked="" type="checkbox"/> | Topographic Map or DRG | <input checked="" type="checkbox"/> |
| Dynamic Mode (Kinematic) | <input checked="" type="checkbox"/> | Aerial Photograph or DOQQ | <input checked="" type="checkbox"/> |
| Precise Positioning Service | <input checked="" type="checkbox"/> | Satellite Imagery | <input checked="" type="checkbox"/> |
| Signal Averaging | <input checked="" type="checkbox"/> | Interpolation Other | <input checked="" type="checkbox"/> |
| Real Time Differential Processing | <input checked="" type="checkbox"/> | | |
| HORIZONTAL ACCURACY ESTIMATE | | | |
| GPS Data Quality | | Interpolation Data Quality | |
| FOM | ± _____ Meters | Source Map Scale: 1:24,000 1:100,000 Other _____ | |
| EPE | ± <u>20</u> Feet or ± _____ Meters | ± _____ Feet or ± _____ Meters | |
| PDOP | _____ | | |

Photos:

| Photo ID# (WBID Site# ##) | Photo Purpose and Direction (upstream, downstream, other) | Photo ID# (WBID Site# ##) | Photo Purpose and Direction (upstream, downstream, other) |
|------------------------------|--|------------------------------|--|
| <u>602-1-984</u> | <u>downstream</u> | | |
| <u>602-1-985</u> | <u>upstream</u> | | |
| <u>602-1-986</u> | <u>Hollow Rd. crossing</u> | | |
| <u>602-1-987</u> | <u>steep slope near Rd. crossing</u> <u>(downstream)</u> | | |

Uses Observed*: (Uses actually observed at time of survey.)

| | | | | |
|---------------------------------------|--------------------------------------|---------------------------------------|---|---------------------------------------|
| <input type="checkbox"/> Swimming | <input type="checkbox"/> Skin diving | <input type="checkbox"/> SCUBA diving | <input type="checkbox"/> Tubing | <input type="checkbox"/> Water skiing |
| <input type="checkbox"/> Wind surfing | <input type="checkbox"/> Kayaking | <input type="checkbox"/> Boating | <input type="checkbox"/> Wading | <input type="checkbox"/> Rafting |
| <input type="checkbox"/> Hunting | <input type="checkbox"/> Trapping | <input type="checkbox"/> Fishing | <input checked="" type="checkbox"/> None of the above | <input type="checkbox"/> Other: |

Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use *Data Sheet D- Recreational Use Interview* when conducting interviews.)

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

| | | | | |
|--|--------------------------------------|--|--|---|
| <input type="checkbox"/> City/county parks | <input type="checkbox"/> Playgrounds | <input type="checkbox"/> MDC conservation lands | <input type="checkbox"/> Urban areas | <input type="checkbox"/> Campgrounds |
| <input type="checkbox"/> Boating accesses | <input type="checkbox"/> State parks | <input type="checkbox"/> National forests | <input type="checkbox"/> Nature trails | <input type="checkbox"/> Stairs/walkway |
| <input type="checkbox"/> No trespass sign | <input type="checkbox"/> Fence | <input checked="" type="checkbox"/> Steep slopes | <input type="checkbox"/> None of the above | <input type="checkbox"/> Other: |

Comments:
pic # 987 (602-1-987)

WBID# 602
Site# 1

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization (must be completed for each site)

Indications of Human Use*: (attach photos)

| | | | | | |
|---|--|--|---|---|--|
| <input checked="" type="checkbox"/> Roads | <input type="checkbox"/> Rope swings | <input type="checkbox"/> Foot paths/prints | <input type="checkbox"/> Dock/platform | <input type="checkbox"/> Livestock Watering | <input type="checkbox"/> RV / ATV Tracks |
| <input type="checkbox"/> Camping Sites | <input type="checkbox"/> Fire pit/ring | <input type="checkbox"/> NPDES Discharge | <input type="checkbox"/> Fishing Tackle | <input type="checkbox"/> Other: | |
| Comments: <u>pic# 602-1-986</u> | | | | | |

Stream Morphology:

Upstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No
If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

| Channel Feature | Transect (#) | Distance from access (m) | Width (m) | Length (m) | Median Depth (m) | Max. Depth (m) |
|-----------------|--------------|--------------------------|-----------|------------|------------------|----------------|
| RIFFLE | | | | | | |
| RUN | | | | | | |
| POOL | | | | | | |

Downstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No
If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

| Channel Feature | Distance from access (m) | Width (m) | Length (m) | Median Depth (m) | Max. Depth (m) |
|-----------------|--------------------------|-----------|------------|------------------|----------------|
| RIFFLE | | | | | |
| RUN | | | | | |
| POOL | | | | | |

Substrate*: (These values should add up to 100%.)

| | | | | | | | | | | | |
|----------|--|----------|----------|--------|-----------|--------|-----------|------------|--|-----------|--|
| % Cobble | | % Gravel | <u>5</u> | % Sand | <u>60</u> | % Silt | <u>35</u> | % Mud/Clay | | % Bedrock | |
|----------|--|----------|----------|--------|-----------|--------|-----------|------------|--|-----------|--|

Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

none

Water Characteristics*: (Mark all that apply.)

| | | | | | |
|---------------------------|--|---------------------------------|--|--|--|
| ODOR: | <input type="checkbox"/> Sewage | <input type="checkbox"/> Musky | <input type="checkbox"/> Chemical | <input checked="" type="checkbox"/> None | <input type="checkbox"/> Other: |
| COLOR: | <input checked="" type="checkbox"/> Clear | <input type="checkbox"/> Green | <input type="checkbox"/> Gray | <input type="checkbox"/> Milky | <input checked="" type="checkbox"/> Other: <u>Brown (nonflowing)</u> |
| BOTTOM DEPOSIT: | <input checked="" type="checkbox"/> Sludge | <input type="checkbox"/> Solids | <input checked="" type="checkbox"/> Fine sediments | <input type="checkbox"/> None | <input type="checkbox"/> Other: |
| WATER SURFACE DEPOSITION: | <input type="checkbox"/> Oil | <input type="checkbox"/> Scum | <input type="checkbox"/> Foam | <input checked="" type="checkbox"/> None | <input type="checkbox"/> Other: |

Comments: Please attach any additional comments to this form.

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Surveyor's Signature: Jenny Hrabik Date of Survey: 21 MAY 2007

Organization: AE Solution Position: Field Tech

huc 3-23-07
AK 5/24/07

MEC Recreational Use Attainability Analysis Field Survey Sheet

| | | | |
|--|---|---------------------------------------|--------------------|
| Waterbody ID: <u>602</u> | Site #: <u>602-1</u> (WBID_Site#) | Dissolved Oxygen | |
| Estimated Channel Incision: <u>4</u> (m) (height between low bank width and water) | | Date: <u>21 MAY 2007</u> | Time: <u>07:30</u> |
| GPS Location (taken at transect 1): UTM X: <u>0491918</u> UTM Y: <u>4421456</u> | | Dissolved Oxygen: <u>9.11</u> (mg/L) | |
| Horizontal Accuracy Estimate (GPS Data Quality): <u>+/- 20</u> (feet) ① | | Dissolved Oxygen: <u>92.1</u> (% sat) | |
| Average Stream Width: <u>4.5</u> (meters) | Length of Survey Segment: <u>150</u> (meters) (20x average stream width) | Specific Cond: <u>276.3</u> (µS/cm) | |
| Field Staff: <u>JRH + TAH</u> | | Water Temperature: <u>15.8</u> (°C) | |

Transect Cross-Section

| | 01 | | 02 | | 03 | | 04 | | 05 | | 06 | | 07 | | 08 | | 09 | | 10 | | 11 | |
|------------------------------------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|
| Measurement | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) |
| 1 | 1.3 | 0.1 | 0 | <0.1 | 0.2 | 0.1 | 0.1 | 0.1 | 0.7 | 0.1 | 0.1 | 0.1 | 0 | 0.6 | 0.1 | 0.1 | 0 | 0.1 | 0 | 0.4 | 0.2 | 0.1 |
| 2 | 1.4 | 0.1 | 0.3 | | 0.3 | 0.2 | 0.2 | 0.2 | 1.1 | 0.2 | 0.5 | 0.2 | 0.4 | 0.7 | 0.5 | 0.5 | 0.6 | 0.4 | 0.3 | 0.3 | 0.6 | 0.3 |
| 3 | 1.5 | 0.1 | 0.6 | | 0.4 | 0.2 | 0.3 | 0.1 | 1.5 | 0.3 | 0.9 | 0.2 | 0.8 | 0.7 | 0.9 | 0.5 | 1.2 | 0.7 | 0.6 | 0.4 | 1.0 | 0.5 |
| 4 | 1.6 | 0.1 | 0.9 | | 0.5 | 0.1 | 0.4 | 0.1 | 1.9 | 0.3 | 1.3 | 0.3 | 1.2 | 1.0 | 1.3 | 0.4 | 1.8 | 0.8 | 0.9 | 0.4 | 1.4 | 0.5 |
| 5 | 1.7 | 0.1 | 1.2 | | 0.6 | 0.1 | 0.5 | 0.1 | 2.3 | 0.3 | 1.7 | 0.4 | 1.6 | >1 | 1.7 | 0.4 | 2.4 | 0.7 | 1.2 | 0.5 | 1.8 | 0.7 |
| 6 | 1.8 | 0.1 | 1.5 | 0.1 | 0.7 | 0.1 | 0.6 | 0.1 | 2.7 | 0.2 | 2.1 | 0.5 | 2.0 | >1 | 2.1 | 0.4 | 3.0 | 0.7 | 1.5 | 0.5 | 2.2 | 0.7 |
| 7 | 1.9 | 0.1 | 1.8 | 0.1 | 0.8 | 0.1 | 0.7 | 0.1 | 3.1 | 0.2 | 2.5 | 0.6 | 2.4 | >1 | 2.5 | 0.3 | 3.6 | 0.6 | 1.8 | 0.5 | 2.6 | 0.6 |
| 8 | 2.0 | 0.1 | 2.1 | 0.1 | 0.9 | 0.1 | 0.8 | 0.1 | 3.5 | 0.2 | 2.9 | 0.6 | 2.8 | >1 | 2.9 | 0.5 | 4.2 | 0.6 | 2.1 | 0.4 | 3.0 | 0.5 |
| 9 | 2.1 | 0.1 | 2.4 | <0.1 | 1.0 | 0.1 | 0.9 | 0.1 | 3.9 | 0.2 | 3.3 | 0.7 | 3.2 | 0.7 | 3.3 | 0.7 | 4.8 | 0.5 | 2.4 | 0.3 | 3.4 | 0.5 |
| 10 | 2.2 | 0.1 | 2.7 | | 1.1 | 0.1 | 1.0 | 0.1 | 4.3 | 0.1 | 3.7 | 0.6 | 3.6 | 0.6 | 3.7 | 0.7 | 5.4 | 0.4 | 2.7 | 0.2 | 3.8 | 0.3 |
| 11 | 2.3 | 0.1 | 3.0 | | 1.2 | 0.1 | 1.1 | 0.1 | 4.7 | 0.1 | 4.1 | 0.1 | 4.0 | 0.6 | 4.1 | 0.5 | 6.0 | 0.1 | 3.0 | 0.1 | 4.2 | 0.1 |
| 12 | 3.1 | 0 | 3.7 | 0 | 4.0 | 0 | 2.5 | 0 | 4.7 | 0 | 4.5 | 0 | 4.2 | 0 | 4.9 | 0 | 6.0 | 0 | 3.5 | 0 | 4.6 | 0 |
| Feature Type (riffle run, or pool) | run | | run | | run | | run | | run | | pool | | pool | | pool | | pool | | pool | | pool | |

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.

GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.

Transects in order of up to downstream.

Mark dry depth measurements as 0; measurements less than 0.1m as <0.1; and greater than 1m as >1

Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

① waited ~15 min, couldn't get better accuracy est.

Signed: [Signature] Date: 21 MAY 2007
BNC 5-23-07
AKS/24/07

WBID# 602
Site# 2

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

| | |
|--|--|
| Date & Time: <u>21 MAY 2007 09:00</u> | Site Location Description (e.g., road crossing): <u>downstream of Haven Rd crossing</u> |
| Personnel (Data Collectors): <u>JRH + TAH</u> | Facility Name: <u>PSF, SOUTH MEADOWS FINISH</u> |
| Current Weather Conditions: <u>Sunny 60° F</u> | Permit Number: <u>MO 0118737</u> |
| Weather Conditions for Past 10 days: <u>UNKNOWN</u> | |
| Drought Conditions?: No drought <input type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input checked="" type="checkbox"/> | |

Site Locations:

| LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS) | | | |
|---|-------------------------------------|--|-------------------------------------|
| Site GPS Coordinates: UTM X: <u>15S 0492432</u> | | Y: <u>4419823</u> | |
| HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.) | | | |
| Global Positioning System (GPS) | | Interpolation | |
| Static Mode | <input checked="" type="checkbox"/> | Topographic Map or DRG | <input checked="" type="checkbox"/> |
| Dynamic Mode (Kinematic) | <input checked="" type="checkbox"/> | Aerial Photograph or DOQQ | <input checked="" type="checkbox"/> |
| Precise Positioning Service | <input checked="" type="checkbox"/> | Satellite Imagery | <input checked="" type="checkbox"/> |
| Signal Averaging | <input checked="" type="checkbox"/> | Interpolation Other | <input checked="" type="checkbox"/> |
| Real Time Differential Processing | <input checked="" type="checkbox"/> | | |
| HORIZONTAL ACCURACY ESTIMATE | | | |
| GPS Data Quality | | Interpolation Data Quality | |
| FOM | ± _____ Meters | Source Map Scale: 1:24,000 1:100,000 Other _____ | |
| EPE | ± <u>17</u> Feet or ± _____ Meters | ± _____ Feet or ± _____ Meters | |
| PDOP | _____ | | |

Photos:

| Photo ID# (WBID Site# ##) | Photo Purpose and Direction (upstream, downstream, other) | Photo ID# (WBID Site# ##) | Photo Purpose and Direction (upstream, downstream, other) |
|------------------------------|--|------------------------------|--|
| <u>602-2-988</u> | <u>upstream</u> | | |
| <u>602-2-989</u> | <u>downstream</u> | | |
| <u>602-2-990</u> | <u>Bridge (Haven Rd)</u> | | |
| <u>602-2-991</u> | <u>steep slope downstream of Bridge</u> | | |

Uses Observed*: (Uses actually observed at time of survey.)

| | | | | |
|---------------------------------------|--------------------------------------|---------------------------------------|---|---------------------------------------|
| <input type="checkbox"/> Swimming | <input type="checkbox"/> Skin diving | <input type="checkbox"/> SCUBA diving | <input type="checkbox"/> Tubing | <input type="checkbox"/> Water skiing |
| <input type="checkbox"/> Wind surfing | <input type="checkbox"/> Kayaking | <input type="checkbox"/> Boating | <input type="checkbox"/> Wading | <input type="checkbox"/> Rafting |
| <input type="checkbox"/> Hunting | <input type="checkbox"/> Trapping | <input type="checkbox"/> Fishing | <input checked="" type="checkbox"/> None of the above | <input type="checkbox"/> Other: |

Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use *Data Sheet D- Recreational Use Interview* when conducting interviews.)

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

| | | | | |
|--|--------------------------------------|--|--|---|
| <input type="checkbox"/> City/county parks | <input type="checkbox"/> Playgrounds | <input type="checkbox"/> MDC conservation lands | <input type="checkbox"/> Urban areas | <input type="checkbox"/> Campgrounds |
| <input type="checkbox"/> Boating accesses | <input type="checkbox"/> State parks | <input type="checkbox"/> National forests | <input type="checkbox"/> Nature trails | <input type="checkbox"/> Stairs/walkway |
| <input type="checkbox"/> No trespass sign | <input type="checkbox"/> Fence | <input checked="" type="checkbox"/> Steep slopes | <input type="checkbox"/> None of the above | <input type="checkbox"/> Other: |

Comments: pic# 602-2-991

WBID# 602
Site# 2

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Indications of Human Use*: (attach photos)

| | | | | | |
|--|--|--|---|---|--|
| <input checked="" type="checkbox"/> Roads | <input type="checkbox"/> Rope swings | <input type="checkbox"/> Foot paths/prints | <input type="checkbox"/> Dock/platform | <input type="checkbox"/> Livestock Watering | <input type="checkbox"/> RV / ATV Tracks |
| <input type="checkbox"/> Camping Sites | <input type="checkbox"/> Fire pit/ring | <input type="checkbox"/> NPDES Discharge | <input type="checkbox"/> Fishing Tackle | <input type="checkbox"/> Other: | |
| Comments: <u>Pic# 602-2-990 Haven Rd Crossing</u> | | | | | |

Stream Morphology:

Upstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

| Channel Feature | Transect (#) | Distance from access (m) | Width (m) | Length (m) | Median Depth (m) | Max. Depth (m) |
|-----------------|--------------|--------------------------|-----------|------------|------------------|----------------|
| RIFFLE | | | | | | |
| RUN | | | | | | |
| POOL | | | | | | |

Downstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

| Channel Feature | Distance from access (m) | Width (m) | Length (m) | Median Depth (m) | Max. Depth (m) |
|-----------------|--------------------------|-----------|------------|------------------|----------------|
| RIFFLE | | | | | |
| RUN | | | | | |
| POOL | | | | | |

Substrate*: (These values should add up to 100%.)

| | | | | | | | | | | |
|----------|----------|----------|-----------|--------|----------|--------|----------|------------|--|-----------|
| % Cobble | <u>1</u> | % Gravel | <u>89</u> | % Sand | <u>5</u> | % Silt | <u>5</u> | % Mud/Clay | | % Bedrock |
|----------|----------|----------|-----------|--------|----------|--------|----------|------------|--|-----------|

Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

none

Water Characteristics*: (Mark all that apply.)

| | | | | | |
|---------------------------|---|---------------------------------|--|--|---|
| ODOR: | <input type="checkbox"/> Sewage | <input type="checkbox"/> Musky | <input type="checkbox"/> Chemical | <input checked="" type="checkbox"/> None | <input type="checkbox"/> Other: |
| COLOR: | <input checked="" type="checkbox"/> Clear | <input type="checkbox"/> Green | <input type="checkbox"/> Gray | <input type="checkbox"/> Milky | <input checked="" type="checkbox"/> Other: <u>Brown (non-flowing)</u> |
| BOTTOM DEPOSIT: | <input type="checkbox"/> Sludge | <input type="checkbox"/> Solids | <input checked="" type="checkbox"/> Fine sediments | <input type="checkbox"/> None | <input type="checkbox"/> Other: |
| WATER SURFACE DEPOSITION: | <input type="checkbox"/> Oil | <input type="checkbox"/> Scum | <input type="checkbox"/> Foam | <input checked="" type="checkbox"/> None | <input type="checkbox"/> Other: |

Comments: Please attach any additional comments to this form.

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Surveyor's Signature: Jimmy Arabou Date of Survey: 21 MAY 2007

Organization: AE Solutions Position: Field Tech.

February 16, 2007

ARC 5-23-07
ARC 5/24/07

| | | | | | | | | | | | |
|--|--|--|--|--|--|---|--|--|--|--|--|
| Waterbody ID: <u>602</u> | | | | | | Site #: <u>602-2</u> (WBID_Site#) | | | | | |
| Estimated Channel Incision: <u>4</u> (m) (height between low bank width and water) | | | | | | | | | | | |
| GPS Location (taken at transect 1): UTM X: <u>0492432</u> UTM Y: <u>4419823</u> | | | | | | | | | | | |
| Horizontal Accuracy Estimate (GPS Data Quality): +/- <u>17</u> (feet) | | | | | | | | | | | |
| Average Stream Width: <u>4.5</u> (meters) | | | | | | Length of Survey Segment: <u>150</u> (meters) (20x average stream width) | | | | | |
| Field Staff: <u>JRH + TAH</u> | | | | | | | | | | | |

| Dissolved Oxygen | |
|-------------------------|--------------------------------------|
| Date: | <u>21 MAY 2007</u> Time: <u>0900</u> |
| Dissolved Oxygen: | <u>8.3</u> (mg/L) |
| Dissolved Oxygen: | <u>86.7</u> (% sat) |
| Specific Cond: | <u>286.1</u> ($\mu\text{S/cm}$) |
| Water Temperature: | <u>17.6</u> ($^{\circ}\text{C}$) |

[illegible]

Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed:

Date _____

ANC 5-23-07
AK 5/24/07

WBID# 602
 Site# 3

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

| | |
|--|---|
| Date & Time: <u>21 MAY 2007 0950</u> | Site Location Description (e.g., road crossing): <u>Downstream of Hill Rd Crossing</u> |
| Personnel (Data Collectors): <u>JRH+TAH</u> | |
| Current Weather Conditions: <u>Sunny 65°F</u> | Facility Name: <u>PSF, SOUTH MEADOWS FINISH</u> |
| | Permit Number: <u>MO 0118737</u> |
| Weather Conditions for Past 10 days: <u>UNKNOWN</u> | |
| Drought Conditions?: No drought <input type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input checked="" type="checkbox"/> | |

Site Locations:

| LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS) | | | |
|---|-------------------------------------|--|-------------------------------------|
| Site GPS Coordinates: UTM X: <u>13S 0492774</u> | | Y: <u>4418266</u> | |
| HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.) | | | |
| Global Positioning System (GPS) | | Interpolation | |
| Static Mode | <input checked="" type="checkbox"/> | Topographic Map or DRG | <input checked="" type="checkbox"/> |
| Dynamic Mode (Kinematic) | <input checked="" type="checkbox"/> | Aerial Photograph or DOQQ | <input checked="" type="checkbox"/> |
| Precise Positioning Service | <input checked="" type="checkbox"/> | Satellite Imagery | <input checked="" type="checkbox"/> |
| Signal Averaging | <input checked="" type="checkbox"/> | Interpolation Other | <input checked="" type="checkbox"/> |
| Real Time Differential Processing | <input checked="" type="checkbox"/> | | |
| HORIZONTAL ACCURACY ESTIMATE | | | |
| GPS Data Quality | | Interpolation Data Quality | |
| FOM | ± _____ Meters | Source Map Scale: 1:24,000 1:100,000 Other _____ | |
| EPE | ± <u>18</u> Feet or ± _____ Meters | ± _____ Feet or ± _____ Meters | |
| PDOP | _____ | | |

Photos:

| Photo ID# (WBID_Site#_##) | Photo Purpose and Direction (upstream, downstream, other) | Photo ID# (WBID_Site#_##) | Photo Purpose and Direction (upstream, downstream, other) |
|------------------------------|--|------------------------------|--|
| <u>602-3-992</u> | <u>upstream</u> | | |
| <u>602-3-993</u> | <u>downstream</u> | | |
| <u>602-3-994</u> | <u>Hill Rd Crossing</u> | | |
| <u>602-3-995</u> | <u>steep slope downstream of bridge</u> | | |

Uses Observed*: (Uses actually observed at time of survey.)

| | | | | |
|--|--------------------------------------|---------------------------------------|---|---------------------------------------|
| <input type="checkbox"/> Swimming | <input type="checkbox"/> Skin diving | <input type="checkbox"/> SCUBA diving | <input type="checkbox"/> Tubing | <input type="checkbox"/> Water skiing |
| <input type="checkbox"/> Wind surfing | <input type="checkbox"/> Kayaking | <input type="checkbox"/> Boating | <input type="checkbox"/> Wading | <input type="checkbox"/> Rafting |
| <input type="checkbox"/> Hunting | <input type="checkbox"/> Trapping | <input type="checkbox"/> Fishing | <input checked="" type="checkbox"/> None of the above | <input type="checkbox"/> Other: |
| Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.) | | | | |

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

| | | | | |
|--|--------------------------------------|--|--|---|
| <input type="checkbox"/> City/county parks | <input type="checkbox"/> Playgrounds | <input type="checkbox"/> MDC conservation lands | <input type="checkbox"/> Urban areas | <input type="checkbox"/> Campgrounds |
| <input type="checkbox"/> Boating accesses | <input type="checkbox"/> State parks | <input type="checkbox"/> National forests | <input type="checkbox"/> Nature trails | <input type="checkbox"/> Stairs/walkway |
| <input type="checkbox"/> No trespass sign | <input type="checkbox"/> Fence | <input checked="" type="checkbox"/> Steep slopes | <input type="checkbox"/> None of the above | <input type="checkbox"/> Other: |
| Comments: <u>pic# 602-3-995</u> | | | | |

WBID# 602
Site# 3

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Indications of Human Use*: (attach photos)

| | | | | | |
|---|--|--|---|---|--|
| <input checked="" type="checkbox"/> Roads | <input type="checkbox"/> Rope swings | <input type="checkbox"/> Foot paths/prints | <input type="checkbox"/> Dock/platform | <input type="checkbox"/> Livestock Watering | <input type="checkbox"/> RV / ATV Tracks |
| <input type="checkbox"/> Camping Sites | <input type="checkbox"/> Fire pit/ring | <input type="checkbox"/> NPDES Discharge | <input type="checkbox"/> Fishing Tackle | <input type="checkbox"/> Other: | |
| Comments: <u>pic #602-3-994</u> | | | | | |

Stream Morphology:

Upstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

| Channel Feature | Transect (#) | Distance from access (m) | Width (m) | Length (m) | Median Depth (m) | Max. Depth (m) |
|-----------------|--------------|--------------------------|-----------|------------|------------------|----------------|
| RIFFLE | | | | | | |
| RUN | | | | | | |
| POOL | | | | | | |

Downstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

| Channel Feature | Distance from access (m) | Width (m) | Length (m) | Median Depth (m) | Max. Depth (m) |
|-----------------|--------------------------|-----------|------------|------------------|----------------|
| RIFFLE | | | | | |
| RUN | | | | | |
| POOL | | | | | |

Substrate*: (These values should add up to 100%.)

| | | | | | | | | | | |
|----------|--|----------|-----------|--------|--|--------|----------|------------|--|-----------|
| % Cobble | | % Gravel | <u>90</u> | % Sand | | % Silt | <u>9</u> | % Mud/Clay | | % Bedrock |
|----------|--|----------|-----------|--------|--|--------|----------|------------|--|-----------|

Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

none

Water Characteristics*: (Mark all that apply.)

| | | | | | |
|---------------------------|---|---------------------------------|--|--|--|
| ODOR: | <input type="checkbox"/> Sewage | <input type="checkbox"/> Musky | <input type="checkbox"/> Chemical | <input checked="" type="checkbox"/> None | <input type="checkbox"/> Other: |
| COLOR: | <input checked="" type="checkbox"/> Clear | <input type="checkbox"/> Green | <input type="checkbox"/> Gray | <input type="checkbox"/> Milky | <input checked="" type="checkbox"/> Other: <u>Brown (nonflowing)</u> |
| BOTTOM DEPOSIT: | <input type="checkbox"/> Sludge | <input type="checkbox"/> Solids | <input checked="" type="checkbox"/> Fine sediments | <input type="checkbox"/> None | <input type="checkbox"/> Other: |
| WATER SURFACE DEPOSITION: | <input type="checkbox"/> Oil | <input type="checkbox"/> Scum | <input type="checkbox"/> Foam | <input checked="" type="checkbox"/> None | <input type="checkbox"/> Other: |

Comments: Please attach any additional comments to this form.

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Surveyor's Signature: Jenny Drabow Date of Survey: 21 MAY 2007

Organization: AE Solutions Position: Field Tech

February 16, 2007

ARC 5-23-07
AK 5/24/07

| | | | | | |
|--|--|--|--|---|-------------------|
| Waterbody ID: <u>602</u> | | Site #: <u>602-3</u> (WBID_Site#) | | Dissolved Oxygen | |
| Estimated Channel Incision: <u>5</u> (m) (height between low bank width and water) | | GPS Location (taken at transect 1): UTM X: <u>0492774</u> UTM Y: <u>4418266</u> | | Date: <u>21 MAY 2007</u> | Time: <u>0950</u> |
| Horizontal Accuracy Estimate (GPS Data Quality): +/- <u>18</u> (feet) | | | | Dissolved Oxygen: <u>8.33</u> (mg/L) | |
| Average Stream Width: <u>6.0</u> (meters) | | Length of Survey Segment: <u>150</u> (meters) (20x average stream width) | | Dissolved Oxygen: <u>88.5</u> (% sat) | |
| Field Staff: <u>JRH + TAH</u> | | | | Specific Cond: <u>292.1</u> ($\mu\text{S}/\text{cm}$) | |
| | | | | Water Temperature: <u>18.2</u> ($^{\circ}\text{C}$) | |

| 01 | | 02 | | 03 | | 04 | | 05 | | 06 | | 07 | | 08 | | 09 | | 10 | | 11 | |
|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|
| Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) |
| 0 | 0.2 | 0.1 | 0.1 | 0 | 0.2 | 0.3 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.3 | 0.1 | 0.5 | 0.1 | 0.6 | 0.1 | 0.5 | 0.1 | 1.1 | 0.1 |
| 0.5 | 0.1 | 0.7 | 0.3 | 0.6 | 0.3 | 0.8 | 0.3 | 0.6 | 0.2 | 0.5 | 0.2 | 0.6 | 0.2 | 1.0 | 0.2 | 0.7 | 0.1 | 0.8 | 0.1 | 1.3 | 0.1 |
| 1.0 | 0.1 | 1.3 | 0.4 | 1.2 | 0.3 | 1.3 | 0.3 | 1.1 | 0.1 | 0.9 | <0.1 | 0.9 | 0.2 | 1.5 | 0.2 | 0.8 | 0.1 | 1.1 | <0.1 | 1.5 | <0.1 |
| 1.5 | 0.1 | 1.9 | 0.4 | 1.8 | 0.3 | 1.8 | 0.3 | 1.6 | 0.2 | 1.3 | <0.1 | 1.2 | 0.2 | 2.0 | 0.2 | 0.9 | 0.1 | 1.4 | 0.1 | 1.7 | <0.1 |
| 2.0 | 0.1 | 2.5 | 0.3 | 2.4 | 0.3 | 2.3 | 0.5 | 2.1 | 0.2 | 1.7 | <0.1 | 1.5 | 0.3 | 2.5 | 0.2 | 1.0 | 0.1 | 1.7 | 0.1 | 1.9 | <0.1 |
| 2.5 | 0.1 | 3.1 | 0.2 | 3.0 | 0.3 | 2.8 | 0.6 | 2.6 | 0.2 | 2.1 | 0.1 | 1.8 | 0.3 | 3.0 | 0.1 | 1.1 | 0.1 | 2.0 | 0.1 | 2.1 | 0.1 |
| 3.0 | 0.2 | 3.7 | 0.1 | 3.6 | 0.4 | 3.3 | 0.4 | 3.1 | 0.1 | 2.5 | 0.2 | 2.1 | 0.3 | 3.5 | 0.1 | 1.2 | 0.1 | 2.3 | 0.1 | 2.3 | <0.1 |
| 3.5 | 0.2 | 4.3 | 0.2 | 4.2 | 0.3 | 3.8 | 0.2 | 3.6 | 0.1 | 2.9 | 0.3 | 2.4 | 0.3 | 4.0 | 0.1 | 1.3 | 0.1 | 2.6 | 0.1 | 2.5 | 0.1 |
| 4.0 | 0.2 | 4.9 | 0.3 | 4.8 | 0.4 | 4.3 | 0.2 | 4.1 | 0.1 | 3.3 | 0.3 | 2.7 | 0.2 | 4.5 | 0.2 | 1.4 | 0.1 | 2.9 | 0.1 | 2.7 | 0.1 |
| 4.5 | 0.2 | 5.5 | 0.4 | 5.4 | 0.3 | 4.8 | 0.3 | 4.6 | 0.1 | 3.7 | 0.3 | 3.0 | 0.2 | 5.0 | 0.1 | 1.5 | 0.1 | 3.2 | 0.1 | 2.9 | 0.1 |
| 5.0 | 0.1 | 6.1 | 0.1 | 6.0 | 0.1 | 5.3 | 0.1 | 5.1 | 0.1 | 4.1 | 0.2 | 3.3 | 0.1 | 5.5 | 0.1 | 1.6 | 0.1 | 3.5 | 0.1 | 3.1 | 0.1 |
| 5.4 | 0 | 6.4 | 0 | 6.3 | 0 | 5.5 | 0 | 6.9 | 0 | 4.8 | 0 | 4.2 | 0 | 6.0 | 0 | 6.9 | 0 | 4.7 | 0 | 4.5 | 0 |
| run | | pool | | pool | | pool | | run | | pool | | pool | | pool | | run | | run | | run | |

Signed: James H. Hark Date 21 MAY 2007
Rec 5-23-07
OK 5/24/07

WBID# 602
 Site# 4

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

| | |
|--|---|
| Date & Time: <u>21 MAY 2007 1045</u> | Site Location Description (e.g., road crossing): <u>downstream of Hyde Rd Crossing</u> |
| Personnel (Data Collectors): <u>JRH & TAH</u> | |
| Current Weather Conditions: <u>Sunny 70°</u> | Facility Name: <u>PSF, SOUTH MEADOWS FINISH</u> |
| | Permit Number: <u>MO 0118737</u> |
| Weather Conditions for Past 10 days: <u>UNKNOWN</u> | |
| Drought Conditions?: No drought <input type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input checked="" type="checkbox"/> | |

Site Locations:

| LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS) | | | |
|---|-------------------------------------|--|-------------------------------------|
| Site GPS Coordinates: UTM X: <u>15S 0492926</u> | | Y: <u>4415033</u> | |
| HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.) | | | |
| Global Positioning System (GPS) | | Interpolation | |
| Static Mode | <input checked="" type="checkbox"/> | Topographic Map or DRG | <input type="checkbox"/> |
| Dynamic Mode (Kinematic) | <input type="checkbox"/> | Aerial Photograph or DOQQ | <input type="checkbox"/> |
| Precise Positioning Service | <input type="checkbox"/> | Satellite Imagery | <input checked="" type="checkbox"/> |
| Signal Averaging | <input type="checkbox"/> | Interpolation Other | <input type="checkbox"/> |
| Real Time Differential Processing | <input type="checkbox"/> | | |
| HORIZONTAL ACCURACY ESTIMATE | | | |
| GPS Data Quality | | Interpolation Data Quality | |
| FOM | ± _____ Meters | Source Map Scale: 1:24,000 1:100,000 Other _____ | |
| EPE | ± <u>17</u> Feet or ± _____ Meters | ± _____ Feet or ± _____ Meters | |
| PDOP | _____ | | |

Photos:

| Photo ID# (WBID Site# ##) | Photo Purpose and Direction (upstream, downstream, other) | Photo ID# (WBID Site# ##) | Photo Purpose and Direction (upstream, downstream, other) |
|------------------------------|--|------------------------------|--|
| <u>602-4-996</u> | <u>upstream</u> | | |
| <u>602-4-997</u> | <u>downstream</u> | | |
| <u>602-4-998</u> | <u>Hyde Rd Bridge</u> | | |
| <u>602-4-999</u> | <u>Slope downstream of Bridge</u> | | |

Uses Observed*: (Uses actually observed at time of survey.)

| | | | | |
|---------------------------------------|--------------------------------------|---------------------------------------|---|---------------------------------------|
| <input type="checkbox"/> Swimming | <input type="checkbox"/> Skin diving | <input type="checkbox"/> SCUBA diving | <input type="checkbox"/> Tubing | <input type="checkbox"/> Water skiing |
| <input type="checkbox"/> Wind surfing | <input type="checkbox"/> Kayaking | <input type="checkbox"/> Boating | <input type="checkbox"/> Wading | <input type="checkbox"/> Rafting |
| <input type="checkbox"/> Hunting | <input type="checkbox"/> Trapping | <input type="checkbox"/> Fishing | <input checked="" type="checkbox"/> None of the above | <input type="checkbox"/> Other: |

Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use *Data Sheet D- Recreational Use Interview* when conducting interviews.)

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

| | | | | |
|--|--------------------------------------|--|--|---|
| <input type="checkbox"/> City/county parks | <input type="checkbox"/> Playgrounds | <input type="checkbox"/> MDC conservation lands | <input type="checkbox"/> Urban areas | <input type="checkbox"/> Campgrounds |
| <input type="checkbox"/> Boating accesses | <input type="checkbox"/> State parks | <input type="checkbox"/> National forests | <input type="checkbox"/> Nature trails | <input type="checkbox"/> Stairs/walkway |
| <input type="checkbox"/> No trespass sign | <input type="checkbox"/> Fence | <input checked="" type="checkbox"/> Steep slopes | <input type="checkbox"/> None of the above | <input type="checkbox"/> Other: |

Comments:
pic # 602-4-999

WBID# 602
Site# 4

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Indications of Human Use*: (attach photos)

| | | | | | |
|---|--|--|---|---|--|
| <input checked="" type="checkbox"/> Roads | <input type="checkbox"/> Rope swings | <input type="checkbox"/> Foot paths/prints | <input type="checkbox"/> Dock/platform | <input type="checkbox"/> Livestock Watering | <input type="checkbox"/> RV / ATV Tracks |
| <input type="checkbox"/> Camping Sites | <input type="checkbox"/> Fire pit/ring | <input type="checkbox"/> NPDES Discharge | <input type="checkbox"/> Fishing Tackle | <input type="checkbox"/> Other: | |
| Comments: <u>pic# 602-4-998</u> | | | | | |

Stream Morphology:

Upstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

| Channel Feature | Transect (#) | Distance from access (m) | Width (m) | Length (m) | Median Depth (m) | Max. Depth (m) |
|-----------------|--------------|--------------------------|-----------|------------|------------------|----------------|
| RIFFLE | | | | | | |
| RUN | | | | | | |
| POOL | | | | | | |

Downstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

| Channel Feature | Distance from access (m) | Width (m) | Length (m) | Median Depth (m) | Max. Depth (m) |
|-----------------|--------------------------|-----------|------------|------------------|----------------|
| RIFFLE | | | | | |
| RUN | | | | | |
| POOL | | | | | |

Substrate*: (These values should add up to 100%.)

| | | | | | | | | | |
|----------|----------|----------|-----------|--------|----------|--------|----------|------------|-----------|
| % Cobble | <u>1</u> | % Gravel | <u>85</u> | % Sand | <u>5</u> | % Silt | <u>9</u> | % Mud/Clay | % Bedrock |
|----------|----------|----------|-----------|--------|----------|--------|----------|------------|-----------|

Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

none

Water Characteristics*: (Mark all that apply.)

| | | | | | |
|---------------------------|---|---------------------------------|--|--|---|
| ODOR: | <input type="checkbox"/> Sewage | <input type="checkbox"/> Musky | <input type="checkbox"/> Chemical | <input checked="" type="checkbox"/> None | <input type="checkbox"/> Other: |
| COLOR: | <input checked="" type="checkbox"/> Clear | <input type="checkbox"/> Green | <input type="checkbox"/> Gray | <input type="checkbox"/> Milky | <input checked="" type="checkbox"/> Other: <u>Brown (non-flowing)</u> |
| BOTTOM DEPOSIT: | <input type="checkbox"/> Sludge | <input type="checkbox"/> Solids | <input checked="" type="checkbox"/> Fine sediments | <input type="checkbox"/> None | <input type="checkbox"/> Other: |
| WATER SURFACE DEPOSITION: | <input type="checkbox"/> Oil | <input type="checkbox"/> Scum | <input type="checkbox"/> Foam | <input checked="" type="checkbox"/> None | <input type="checkbox"/> Other: |

Comments: Please attach any additional comments to this form.

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Surveyor's Signature: Jenny Thabek Date of Survey: 5/21/07

Organization: AE Solutions Position: Field Tech

MEC Recreational Use Attainability Analysis Field Survey Sheet

| | | |
|---|--------------------------------------|---|
| Waterbody ID: <u>602</u> | Site #: <u>602-4</u> (WBID_Site#) | Dissolved Oxygen Date: <u>21 MAY 2007</u> Time: <u>1045</u> Dissolved Oxygen: <u>9.5425</u> (mg/L) Dissolved Oxygen: <u>98.6</u> (% sat) Specific Cond: <u>303.0</u> (µS/cm) Water Temperature: <u>18.7</u> (°C) (Recalibrated DO meter) |
| Estimated Channel Incision: <u>4</u> (m) (height between low bank width and water) GPS Location (taken at transect 1): UTM X: <u>0492926</u> UTM Y: <u>4415033</u> Horizontal Accuracy Estimate (GPS Data Quality): <u>+/- 17</u> (feet) | | |
| Average Stream Width: <u>5.0</u> (meters) Length of Survey Segment: <u>150</u> (meters) (20x average stream width) | | |
| Field Staff: <u>JRH + TAH</u> | | |

Transect Cross-Section

| | 01 | | 02 | | 03 | | 04 | | 05 | | 06 | | 07 | | 08 | | 09 | | 10 | | 11 | |
|-------------------------------------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|
| Measurement | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) |
| 1 | 0.2 | 0.1 | 1.1 | 0.1 | 3.6 | 0.1 | 0.8 | 0.1 | 4.6 | 0.1 | 0 | <0.1 | 0.2 | 0.1 | 0.3 | 0.1 | 0.6 | 0.1 | 0.4 | 0.1 | 0.5 | 0.1 |
| 2 | 0.4 | 0.1 | 1.5 | <0.1 | 3.9 | 0.1 | 1.1 | 0.1 | 4.7 | | 0.4 | <0.1 | 0.5 | 0.3 | 0.6 | 0.3 | 1.1 | 0.1 | 0.6 | 0.1 | 0.7 | 0.1 |
| 3 | 0.6 | 0.1 | 1.9 | <0.1 | 4.2 | 0.1 | 1.4 | 0.1 | 4.8 | | 0.8 | 0.2 | 0.8 | 0.4 | 0.9 | 0.3 | 1.6 | 0.1 | 0.8 | 0.2 | 0.9 | 0.2 |
| 4 | 0.8 | 0.2 | 2.3 | <0.1 | 4.5 | 0.1 | 1.7 | 0.1 | 4.9 | | 1.2 | 0.1 | 1.1 | 0.3 | 1.2 | 0.3 | 2.1 | 0.1 | 1.0 | 0.2 | 1.1 | 0.2 |
| 5 | 1.0 | 0.2 | 2.7 | <0.1 | 4.8 | 0.1 | 2.0 | 0.1 | 5.0 | | 1.6 | <0.1 | 1.4 | 0.3 | 1.5 | 0.3 | 2.6 | 0.1 | 1.2 | 0.2 | 1.3 | 0.2 |
| 6 | 1.2 | 0.1 | 3.1 | <0.1 | 5.1 | <0.1 | 2.3 | 0.1 | 5.1 | | 2.0 | <0.1 | 1.7 | 0.3 | 1.8 | 0.3 | 3.1 | 0.2 | 1.4 | 0.2 | 1.5 | 0.2 |
| 7 | 1.4 | 0.1 | 3.5 | <0.1 | 5.4 | <0.1 | 2.6 | <0.1 | 5.2 | | 2.4 | 0.1 | 2.0 | 0.4 | 2.1 | 0.3 | 3.6 | 0.2 | 1.6 | 0.2 | 1.7 | 0.1 |
| 8 | 1.6 | 0.1 | 3.9 | 0.1 | 5.7 | 0.1 | 2.9 | <0.1 | 5.3 | | 2.8 | <0.1 | 2.3 | 0.3 | 2.4 | 0.3 | 4.1 | 0.2 | 1.8 | 0.2 | 1.9 | 0.1 |
| 9 | 1.8 | 0.1 | 4.3 | 0.1 | 6.0 | 0.2 | 3.2 | 0.2 | 5.4 | | 3.2 | <0.1 | 2.6 | 0.3 | 2.7 | 0.3 | 4.6 | 0.3 | 2.0 | 0.2 | 2.1 | 0.1 |
| 10 | 2.0 | 0.1 | 4.7 | 0.1 | 6.3 | 0.2 | 3.5 | 0.3 | 5.5 | | 3.6 | <0.1 | 2.9 | 0.1 | 3.0 | 0.1 | 5.1 | 0.5 | 2.2 | 0.1 | 2.3 | 0.1 |
| 11 | 2.2 | 0.1 | 5.1 | 0.1 | 6.6 | 0.1 | 3.8 | 0.1 | 5.6 | | 4.0 | <0.1 | 3.2 | 0.1 | 3.3 | 0.1 | 5.6 | 0.4 | 2.4 | 0.1 | 2.5 | 0.1 |
| 12 | 4.8 | 0 | 6.5 | 0 | 6.7 | 0 | 4.5 | 0 | 6.4 | 0 | 4.7 | 0 | 3.4 | 0 | 3.8 | 0 | 5.7 | 0 | 3.8 | 0 | 3.7 | 0 |
| Feature Type (riffle, run, or pool) | run | | run | | run | | run | | run | | riffle | | run | | run | | run | | run | | run | |

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.

GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.

Transects in order of up to downstream.

Mark dry depth measurements as 0; measurements less than 0.1m as <0.1; and greater than 1m as >1

Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed: _____

Date: 21 MAY 2007

Handwritten notes:
 BWC 5-23-07
 CJK 5/24/07

WBID# 602
 Site# 5

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

| | |
|--|--|
| Date & Time: <u>21 MAY 2007 1140</u> | Site Location Description (e.g., road crossing): <u>downstream of Hacker Rd. crossing</u> |
| Personnel (Data Collectors): <u>JRH + TAH</u> | |
| Current Weather Conditions: <u>sunny 70°F</u> | Facility Name: <u>PSF, SOUTH MEADOWS FINISH</u> |
| | Permit Number: <u>MO 0118737</u> |
| Weather Conditions for Past 10 days: <u>UNKNOWN</u> | |
| Drought Conditions?: No drought <input type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input checked="" type="checkbox"/> | |

Site Locations:

| | | | |
|---|-------------------------------------|--|-------------------------------------|
| LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS) | | | |
| Site GPS Coordinates: UTM X: <u>15S 0492866</u> | | Y: <u>4413387 4413387</u> | |
| HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.) | | | |
| Global Positioning System (GPS) | | Interpolation | |
| Static Mode | <input checked="" type="checkbox"/> | Topographic Map or DRG | <input checked="" type="checkbox"/> |
| Dynamic Mode (Kinematic) | <input checked="" type="checkbox"/> | Aerial Photograph or DOQQ | <input checked="" type="checkbox"/> |
| Precise Positioning Service | <input checked="" type="checkbox"/> | Satellite Imagery | <input checked="" type="checkbox"/> |
| Signal Averaging | <input checked="" type="checkbox"/> | Interpolation Other | <input checked="" type="checkbox"/> |
| Real Time Differential Processing | <input checked="" type="checkbox"/> | | |
| HORIZONTAL ACCURACY ESTIMATE | | | |
| GPS Data Quality | | Interpolation Data Quality | |
| FOM | ± _____ Meters | Source Map Scale: 1:24,000 1:100,000 Other _____ | |
| EPE | ± <u>15</u> Feet or ± _____ Meters | ± _____ Feet or ± _____ Meters | |
| PDOP | _____ | | |

Photos:

| Photo ID# (WBID Site# ##) | Photo Purpose and Direction (upstream, downstream, other) | Photo ID# (WBID Site# ##) | Photo Purpose and Direction (upstream, downstream, other) |
|------------------------------|--|------------------------------|--|
| <u>602-5-1001</u> | <u>upstream</u> | | |
| <u>602-5-1002</u> | <u>downstream</u> | | |
| <u>602-5-1003</u> | <u>Hacker Rd crossing</u> | | |
| <u>602-5-1004</u> | <u>steep slope downstream of bridge</u> | | |

Uses Observed*: (Uses actually observed at time of survey.)

| | | | | |
|--|--------------------------------------|---------------------------------------|---|---------------------------------------|
| <input type="checkbox"/> Swimming | <input type="checkbox"/> Skin diving | <input type="checkbox"/> SCUBA diving | <input type="checkbox"/> Tubing | <input type="checkbox"/> Water skiing |
| <input type="checkbox"/> Wind surfing | <input type="checkbox"/> Kayaking | <input type="checkbox"/> Boating | <input type="checkbox"/> Wading | <input type="checkbox"/> Rafting |
| <input type="checkbox"/> Hunting | <input type="checkbox"/> Trapping | <input type="checkbox"/> Fishing | <input checked="" type="checkbox"/> None of the above | <input type="checkbox"/> Other: |
| Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.) | | | | |

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

| | | | | |
|--|--------------------------------------|--|--|---|
| <input type="checkbox"/> City/county parks | <input type="checkbox"/> Playgrounds | <input type="checkbox"/> MDC conservation lands | <input type="checkbox"/> Urban areas | <input type="checkbox"/> Campgrounds |
| <input type="checkbox"/> Boating accesses | <input type="checkbox"/> State parks | <input type="checkbox"/> National forests | <input type="checkbox"/> Nature trails | <input type="checkbox"/> Stairs/walkway |
| <input type="checkbox"/> No trespass sign | <input type="checkbox"/> Fence | <input checked="" type="checkbox"/> Steep slopes | <input type="checkbox"/> None of the above | <input type="checkbox"/> Other: |
| Comments: <u>pic# 602-5-1004</u> | | | | |

WBID# 602
Site# 5

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Indications of Human Use*: (attach photos)

| | | | | | |
|---|--|--|---|---|--|
| <input checked="" type="checkbox"/> Roads | <input type="checkbox"/> Rope swings | <input type="checkbox"/> Foot paths/prints | <input type="checkbox"/> Dock/platform | <input type="checkbox"/> Livestock Watering | <input type="checkbox"/> RV / ATV Tracks |
| <input type="checkbox"/> Camping Sites | <input type="checkbox"/> Fire pit/ring | <input type="checkbox"/> NPDES Discharge | <input type="checkbox"/> Fishing Tackle | <input type="checkbox"/> Other: | |
| Comments: <u>pic # 602-5-1003</u> | | | | | |

Stream Morphology:

Upstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

| Channel Feature | Transect (#) | Distance from access (m) | Width (m) | Length (m) | Median Depth (m) | Max. Depth (m) |
|-----------------|--------------|--------------------------|-----------|------------|------------------|----------------|
| RIFFLE | | | | | | |
| RUN | | | | | | |
| POOL | | | | | | |

Downstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

| Channel Feature | Distance from access (m) | Width (m) | Length (m) | Median Depth (m) | Max. Depth (m) |
|-----------------|--------------------------|-----------|------------|------------------|----------------|
| RIFFLE | | | | | |
| RUN | | | | | |
| POOL | | | | | |

Substrate*: (These values should add up to 100%.)

| | | | | | | | | |
|----------|----------|----------|-----------|--------|----------|--------|------------|-----------|
| % Cobble | <u>5</u> | % Gravel | <u>90</u> | % Sand | <u>5</u> | % Silt | % Mud/Clay | % Bedrock |
|----------|----------|----------|-----------|--------|----------|--------|------------|-----------|

Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

none

Water Characteristics*: (Mark all that apply.)

| | | | | | |
|---------------------------|---|---------------------------------|--|--|--|
| ODOR: | <input type="checkbox"/> Sewage | <input type="checkbox"/> Musky | <input type="checkbox"/> Chemical | <input checked="" type="checkbox"/> None | <input type="checkbox"/> Other: |
| COLOR: | <input checked="" type="checkbox"/> Clear | <input type="checkbox"/> Green | <input type="checkbox"/> Gray | <input type="checkbox"/> Milky | <input checked="" type="checkbox"/> Other: <u>Brown (nonflowing)</u> |
| BOTTOM DEPOSIT: | <input type="checkbox"/> Sludge | <input type="checkbox"/> Solids | <input checked="" type="checkbox"/> Fine sediments | <input type="checkbox"/> None | <input type="checkbox"/> Other: |
| WATER SURFACE DEPOSITION: | <input type="checkbox"/> Oil | <input type="checkbox"/> Scum | <input type="checkbox"/> Foam | <input checked="" type="checkbox"/> None | <input type="checkbox"/> Other: |

Comments: Please attach any additional comments to this form.

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Surveyor's Signature: Jenny Thabert Date of Survey: 21 MAY 2007
Organization: AESolutions Position: Field Tech

MEC Recreational Use Attainability Analysis Field Survey Sheet

| | |
|---|--|
| <p>Waterbody ID: <u>602</u> Site #: <u>602-5</u> (WBID_Site#)</p> <p>Estimated Channel Incision: <u>4</u> (m) (height between low bank width and water)</p> <p>GPS Location (taken at transect 1): UTM X: <u>0497866</u> UTM Y: <u>4413387</u></p> <p>Horizontal Accuracy Estimate (GPS Data Quality): <u>+/- 15</u> (feet)</p> <p>Average Stream Width: <u>6.0</u> (meters) Length of Survey Segment: <u>150</u> (meters) (20x average stream width)</p> <p>Field Staff: <u>JRH + TAH</u></p> | <p align="center">Dissolved Oxygen</p> <p>Date: <u>21 MAY 2007</u> Time: <u>1140</u></p> <p>Dissolved Oxygen: <u>9.3 ± 0.72</u> (mg/L)</p> <p>Dissolved Oxygen: <u>98.7</u> (% sat)</p> <p>Specific Cond: <u>330.5</u> (µS/cm)</p> <p>Water Temperature: <u>21.8</u> (°C)</p> |
|---|--|

Transect Cross-Section

| Measurement | 01 | | 02 | | 03 | | 04 | | 05 | | 06 | | 07 | | 08 | | 09 | | 10 | | 11 | |
|------------------------------------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|
| | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) |
| 1 | 0.7 | 0.1 | 0.1 | 0.1 | 0.3 | 0.1 | 0.6 | 0.1 | 2.2 | 0.1 | 1.3 | 0.1 | 0.4 | 0.1 | 0.4 | 0.1 | 0.2 | 0.1 | 0 | <0.1 | 0.2 | 0.1 |
| 2 | 0.9 | <0.1 | 0.2 | 0.2 | 0.4 | 0.1 | 1.0 | 0.1 | 2.3 | 0.1 | 1.5 | 0.1 | 1.1 | 0.1 | 0.5 | | 0.4 | | 0.6 | | 0.3 | |
| 3 | 1.1 | 0.1 | 0.3 | 0.2 | 0.5 | 0.2 | 1.4 | 0.1 | 2.4 | 0.1 | 1.7 | 0.1 | 1.8 | <0.1 | 0.6 | | 0.6 | | 1.2 | | 0.4 | |
| 4 | 1.3 | 0.1 | 0.4 | 0.2 | 0.6 | 0.1 | 1.8 | 0.1 | 2.5 | 0.1 | 1.9 | 0.1 | 2.5 | <0.1 | 0.7 | | 0.8 | | 1.8 | | 0.5 | |
| 5 | 1.5 | 0.1 | 0.5 | 0.2 | 0.7 | 0.1 | 2.2 | 0.1 | 2.6 | 0.2 | 2.1 | 0.1 | 3.2 | <0.1 | 0.8 | | 1.0 | | 2.4 | | 0.6 | |
| 6 | 1.7 | 0.1 | 0.6 | 0.2 | 0.8 | | 2.6 | 0.1 | 2.7 | 0.2 | 2.3 | 0.1 | 3.9 | <0.1 | 0.9 | | 1.2 | | 3.0 | | 0.7 | |
| 7 | 1.9 | 0.1 | 0.7 | 0.2 | 0.9 | | 3.0 | 0.1 | 2.8 | 0.2 | 2.5 | 0.1 | 4.6 | 0.1 | 1.0 | | 1.4 | | 3.6 | | 0.8 | |
| 8 | 2.1 | 0.1 | 0.8 | 0.1 | 1.0 | | 3.4 | 0.2 | 2.9 | 0.2 | 2.7 | 0.1 | 5.3 | 0.1 | 1.1 | | 1.6 | | 4.2 | | 0.9 | |
| 9 | 2.3 | 0.2 | 0.9 | 0.1 | 1.1 | | 3.8 | 0.2 | 3.0 | 0.1 | 2.9 | 0.2 | 6.0 | <0.1 | 1.2 | | 1.8 | | 4.8 | | 1.0 | |
| 10 | 2.5 | 0.1 | 1.0 | 0.1 | 1.2 | | 4.2 | 0.1 | 3.1 | 0.1 | 3.1 | 0.2 | 6.7 | <0.1 | 1.3 | | 2.0 | | 5.4 | | 1.1 | |
| 11 | 2.7 | 0.1 | 1.1 | 0.1 | 1.3 | | 4.6 | 0.1 | 3.2 | 0.1 | 3.3 | 0.1 | 7.4 | 0.1 | 1.4 | | 2.2 | | 6.0 | | 1.2 | |
| 12 | 3.5 | 0 | 4.4 | 0 | 5.2 | 0 | 5.3 | 0 | 3.5 | 0 | 4.3 | 0 | 8.3 | 0 | 5.8 | 0 | 4.5 | 0 | 6.4 | 0 | 8.2 | 0 |
| Feature Type (riffle run, or pool) | run | | run | | run | | run | | run | | run | | run | | run | | run | | riffle | | run | |

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.

GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.

Transects in order of up to downstream.

Mark dry depth measurements as 0; measurements less than 0.1m as <0.1; and greater than 1m as >1

Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed: Jenny Arabick Date: 21 MAY 2007
BNC 5-23-07
AR 5/24/07

WBID# 602
 Site# 6

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

| | |
|--|--|
| Date & Time: <u>21 MAY 2007 1220</u> | Site Location Description (e.g., road crossing): <u>downstream of HWY M road crossing</u> |
| Personnel (Data Collectors): <u>JRH & TAH</u> | |
| Current Weather Conditions: <u>windy Sunny 75°F</u> | Facility Name: <u>PSF, SOUTH MEADOWS FINISH</u> |
| | Permit Number: <u>MO 0118737</u> |
| Weather Conditions for Past 10 days: <u>UNKNOWN</u> | |
| Drought Conditions?: No drought <input type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input checked="" type="checkbox"/> | |

Site Locations:

| LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS) | | | |
|---|-------------------------------------|--|-------------------------------------|
| Site GPS Coordinates: UTM X: <u>15 S 0493470</u> | | Y: <u>4411150</u> | |
| HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.) | | | |
| Global Positioning System (GPS) | | Interpolation | |
| Static Mode | <input checked="" type="checkbox"/> | Topographic Map or DRG | <input checked="" type="checkbox"/> |
| Dynamic Mode (Kinematic) | <input checked="" type="checkbox"/> | Aerial Photograph or DOQQ | <input checked="" type="checkbox"/> |
| Precise Positioning Service | <input checked="" type="checkbox"/> | Satellite Imagery | <input checked="" type="checkbox"/> |
| Signal Averaging | <input checked="" type="checkbox"/> | Interpolation Other | <input checked="" type="checkbox"/> |
| Real Time Differential Processing | <input checked="" type="checkbox"/> | | |
| HORIZONTAL ACCURACY ESTIMATE | | | |
| GPS Data Quality | | Interpolation Data Quality | |
| FOM | ± _____ Meters | Source Map Scale: 1:24,000 1:100,000 Other _____ | |
| EPE | ± <u>16</u> Feet or ± _____ Meters | ± _____ Feet or ± _____ Meters | |
| PDOP | _____ | | |

Photos:

| Photo ID# (WBID Site# ##) | Photo Purpose and Direction (upstream, downstream, other) | Photo ID# (WBID Site# ##) | Photo Purpose and Direction (upstream, downstream, other) |
|------------------------------|--|------------------------------|--|
| <u>602-6-1005</u> | <u>upstream</u> | | |
| <u>602-6-1006</u> | <u>downstream</u> | | |
| <u>602-6-1007</u> | <u>HWY M Bridge</u> | | |
| <u>602-6-1008</u> | <u>Slope downstream of M Bridge</u> | | |

Uses Observed*: (Uses actually observed at time of survey.)

| | | | | |
|--|--------------------------------------|---------------------------------------|---|---------------------------------------|
| <input type="checkbox"/> Swimming | <input type="checkbox"/> Skin diving | <input type="checkbox"/> SCUBA diving | <input type="checkbox"/> Tubing | <input type="checkbox"/> Water skiing |
| <input type="checkbox"/> Wind surfing | <input type="checkbox"/> Kayaking | <input type="checkbox"/> Boating | <input type="checkbox"/> Wading | <input type="checkbox"/> Rafting |
| <input type="checkbox"/> Hunting | <input type="checkbox"/> Trapping | <input type="checkbox"/> Fishing | <input checked="" type="checkbox"/> None of the above | <input type="checkbox"/> Other: |
| Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.) | | | | |

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

| | | | | |
|--|--------------------------------------|--|--|---|
| <input type="checkbox"/> City/county parks | <input type="checkbox"/> Playgrounds | <input type="checkbox"/> MDC conservation lands | <input type="checkbox"/> Urban areas | <input type="checkbox"/> Campgrounds |
| <input type="checkbox"/> Boating accesses | <input type="checkbox"/> State parks | <input type="checkbox"/> National forests | <input type="checkbox"/> Nature trails | <input type="checkbox"/> Stairs/walkway |
| <input type="checkbox"/> No trespass sign | <input type="checkbox"/> Fence | <input checked="" type="checkbox"/> Steep slopes | <input type="checkbox"/> None of the above | <input type="checkbox"/> Other: |
| Comments: <u>pic # 602-6-1008</u> | | | | |

WBID# 602
Site# 6

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Indications of Human Use*: (attach photos)

| | | | | | |
|---|--|--|---|---|--|
| <input checked="" type="checkbox"/> Roads | <input type="checkbox"/> Rope swings | <input type="checkbox"/> Foot paths/prints | <input type="checkbox"/> Dock/platform | <input type="checkbox"/> Livestock Watering | <input type="checkbox"/> RV / ATV Tracks |
| <input type="checkbox"/> Camping Sites | <input type="checkbox"/> Fire pit/ring | <input type="checkbox"/> NPDES Discharge | <input type="checkbox"/> Fishing Tackle | <input type="checkbox"/> Other: | |
| Comments: <u>pic# 602-6-1007</u> | | | | | |

Stream Morphology:

Upstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

| Channel Feature | Transect (#) | Distance from access (m) | Width (m) | Length (m) | Median Depth (m) | Max. Depth (m) |
|-----------------|--------------|--------------------------|-----------|------------|------------------|----------------|
| RIFFLE | | | | | | |
| RUN | | | | | | |
| POOL | | | | | | |

Downstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

| Channel Feature | Distance from access (m) | Width (m) | Length (m) | Median Depth (m) | Max. Depth (m) |
|-----------------|--------------------------|-----------|------------|------------------|----------------|
| RIFFLE | | | | | |
| RUN | | | | | |
| POOL | | | | | |

Substrate*: (These values should add up to 100%.)

| | | | | | |
|----------|----------|------------------|------------------|----------------------|-----------|
| % Cobble | % Gravel | <u>50</u> % Sand | <u>20</u> % Silt | <u>30</u> % Mud/Clay | % Bedrock |
|----------|----------|------------------|------------------|----------------------|-----------|

Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

| |
|-------------|
| <u>none</u> |
|-------------|

Water Characteristics*: (Mark all that apply.)

| | | | | | |
|---------------------------|--|---------------------------------|--|--|---|
| ODOR: | <input type="checkbox"/> Sewage | <input type="checkbox"/> Musky | <input type="checkbox"/> Chemical | <input checked="" type="checkbox"/> None | <input type="checkbox"/> Other: |
| COLOR: | <input checked="" type="checkbox"/> Clear | <input type="checkbox"/> Green | <input type="checkbox"/> Gray | <input type="checkbox"/> Milky | <input checked="" type="checkbox"/> Other: <u>Brown (non-flowing)</u> |
| BOTTOM DEPOSIT: | <input checked="" type="checkbox"/> Sludge | <input type="checkbox"/> Solids | <input checked="" type="checkbox"/> Fine sediments | <input type="checkbox"/> None | <input type="checkbox"/> Other: |
| WATER SURFACE DEPOSITION: | <input type="checkbox"/> Oil | <input type="checkbox"/> Scum | <input type="checkbox"/> Foam | <input checked="" type="checkbox"/> None | <input type="checkbox"/> Other: |

Comments: Please attach any additional comments to this form.

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Surveyor's Signature: Jenny Tharion Date of Survey: 21 MAY 2007

Organization: AESolutions Position: Field Tech

MEC Recreational Use Attainability Analysis Field Survey Sheet

| | | |
|---|--------------------------------------|---|
| Waterbody ID: <u>602</u> | Site #: <u>602-6</u> (WBID_Site#) | Dissolved Oxygen Date: <u>21 MAY 2007</u> Time: <u>1220</u> |
| Estimated Channel Incision: <u>4</u> (m) (height between low bank width and water) | | Dissolved Oxygen: <u>7.14</u> (mg/L) |
| GPS Location (taken at transect 1): UTM X: <u>0493470</u> UTM Y: <u>4411150</u> | | Dissolved Oxygen: <u>86.8</u> (% sat) |
| Horizontal Accuracy Estimate (GPS Data Quality): <u>+/- 16</u> (feet) | | Specific Cond: <u>326.4</u> (µS/cm) |
| Average Stream Width: <u>7.0</u> (meters) Length of Survey Segment: <u>150</u> (meters) (20x average stream width) | | Water Temperature: <u>20.8</u> (°C) |
| Field Staff: <u>JRH & TAH</u> | | |

Transect Cross-Section

| | 01 | | 02 | | 03 | | 04 | | 05 | | 06 | | 07 | | 08 | | 09 | | 10 | | 11 | |
|-------------------------------------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|
| Measurement | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) |
| 1 | 0.1 | 0.1 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.4 | 0.1 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| 2 | 0.4 | 0.2 | 0.6 | 0.2 | 0.2 | 0.2 | 0.5 | 0.2 | 0.6 | 0.1 | 0.9 | 0.4 | 0.9 | 0.3 | 1.1 | 0.3 | 0.8 | 0.3 | 0.8 | 0.3 | 0.9 | 0.4 |
| 3 | 0.7 | 0.2 | 1.0 | 0.1 | 0.4 | 0.3 | 0.9 | 0.3 | 1.1 | 0.1 | 1.4 | 0.5 | 1.6 | 0.6 | 2.1 | 2.1 | 1.5 | 0.4 | 1.5 | 0.4 | 1.7 | 0.3 |
| 4 | 1.0 | 0.3 | 1.4 | 0.1 | 0.6 | 0.3 | 1.3 | 0.4 | 1.6 | 0.5 | 1.9 | 0.5 | 2.3 | 0.7 | 3.1 | >1 | 2.2 | 0.7 | 2.2 | 0.7 | 2.5 | 0.5 |
| 5 | 1.3 | 0.2 | 1.8 | 0.2 | 0.8 | 0.2 | 1.7 | 0.4 | 2.1 | 0.5 | 2.4 | 0.6 | 3.0 | 0.6 | 4.1 | >1 | 2.9 | 0.8 | 2.9 | 0.7 | 3.3 | 0.5 |
| 6 | 1.6 | 0.2 | 2.2 | 0.2 | 1.0 | 0.2 | 2.1 | 0.5 | 2.6 | 0.5 | 2.9 | 0.5 | 3.7 | 0.6 | 5.1 | >1 | 3.6 | 0.7 | 3.6 | 0.7 | 4.1 | 0.7 |
| 7 | 1.9 | 0.1 | 2.6 | 0.2 | 1.2 | 0.1 | 2.5 | 0.5 | 3.1 | 0.5 | 3.4 | 0.5 | 4.4 | 0.6 | 6.1 | >1 | 4.3 | 0.7 | 4.3 | 0.7 | 4.9 | 0.6 |
| 8 | 2.2 | 0.1 | 3.0 | 0.3 | 1.4 | | 2.9 | 0.6 | 3.6 | 0.6 | 3.9 | 0.5 | 5.1 | 0.5 | 7.1 | >1 | 5.0 | 0.9 | 5.0 | 0.6 | 5.7 | 0.6 |
| 9 | 2.5 | 0.1 | 3.4 | 0.3 | 1.6 | | 3.3 | 0.6 | 4.1 | 0.6 | 4.4 | 0.4 | 5.8 | 0.5 | 8.1 | >1 | 5.7 | 0.7 | 5.7 | 0.5 | 6.5 | 0.7 |
| 10 | 2.8 | 0.2 | 3.8 | 0.2 | 1.8 | | 3.7 | 0.3 | 4.6 | 0.5 | 4.9 | 0.3 | 6.5 | 0.3 | 9.1 | 0.4 | 6.4 | 0.3 | 6.4 | 0.4 | 7.3 | 0.6 |
| 11 | 3.1 | 0.1 | 4.2 | 0.1 | 2.0 | | 4.1 | 0.1 | 5.1 | 0.4 | 5.4 | 0.1 | 7.2 | 0.1 | 10.1 | 0.1 | 7.1 | 0.1 | 7.1 | 0.2 | 8.1 | 0.6 |
| 12 | 3.7 | 0 | 4.6 | 0 | 4.6 | 0 | 4.6 | 0 | 6.0 | 0 | 6.3 | 0 | 9.0 | 0 | 10.1 | 0 | 8.0 | 0 | 7.6 | 0 | 8.3 | 0 |
| Feature Type (riffle, run, or pool) | run | | pool | | run | | pool | | pool | | pool | | pool | | pool | | pool | | pool | | pool | |

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.

GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.

Transects in order of up to downstream.

Mark dry depth measurements as 0; measurements less than 0.1m as <0.1; and greater than 1m as >1

Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed: Jenny Hrabik Date: 21 MAY 2007

5-23-07
JRH 5/24/07

WBID# 602
 Site# 7

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

| | |
|--|---|
| Date & Time: <u>21 MAY 2007 1330</u> | Site Location Description (e.g., road crossing): <u>downstream of Heath Rd. crossing</u> |
| Personnel (Data Collectors): <u>JRH & TAH</u> | Facility Name: <u>PSF, SOUTH MEADOWS FINISH</u> |
| Current Weather Conditions: <u>Sunny 80°F</u> | Permit Number: <u>MO 0118737</u> |
| Weather Conditions for Past 10 days: <u>UNKNOWN</u> | |
| Drought Conditions?: No drought <input type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input checked="" type="checkbox"/> | |

Site Locations:

| LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS) | | | |
|---|-------------------------------------|--|-------------------------------------|
| Site GPS Coordinates: UTM X: <u>155 0493836</u> Y: <u>4409904</u> | | | |
| HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.) | | | |
| Global Positioning System (GPS) | | Interpolation | |
| Static Mode | <input checked="" type="checkbox"/> | Topographic Map or DRG | <input checked="" type="checkbox"/> |
| Dynamic Mode (Kinematic) | <input checked="" type="checkbox"/> | Aerial Photograph or DOQQ | <input checked="" type="checkbox"/> |
| Precise Positioning Service | <input checked="" type="checkbox"/> | Satellite Imagery | <input checked="" type="checkbox"/> |
| Signal Averaging | <input checked="" type="checkbox"/> | Interpolation Other | <input checked="" type="checkbox"/> |
| Real Time Differential Processing | <input checked="" type="checkbox"/> | | |
| HORIZONTAL ACCURACY ESTIMATE | | | |
| GPS Data Quality | | Interpolation Data Quality | |
| FOM | ± _____ Meters | Source Map Scale: 1:24,000 1:100,000 Other _____ | |
| EPE | ± <u>17</u> Feet or ± _____ Meters | ± _____ Feet or ± _____ Meters | |
| PDOP | _____ | | |

Photos:

| Photo ID# (WBID Site# ##) | Photo Purpose and Direction (upstream, downstream, other) | Photo ID# (WBID Site# ##) | Photo Purpose and Direction (upstream, downstream, other) |
|------------------------------|--|------------------------------|--|
| <u>602-7-1009</u> | <u>upstream</u> | | |
| <u>602-7-1010</u> | <u>downstream</u> | | |
| <u>602-7-1011</u> | <u>Bridge (Heath Rd)</u> | | |
| <u>602-7-1012</u> | <u>Slope downstream of Bridge</u> | | |

Uses Observed*: (Uses actually observed at time of survey.)

| | | | | |
|--|--------------------------------------|---------------------------------------|---|---------------------------------------|
| <input type="checkbox"/> Swimming | <input type="checkbox"/> Skin diving | <input type="checkbox"/> SCUBA diving | <input type="checkbox"/> Tubing | <input type="checkbox"/> Water skiing |
| <input type="checkbox"/> Wind surfing | <input type="checkbox"/> Kayaking | <input type="checkbox"/> Boating | <input type="checkbox"/> Wading | <input type="checkbox"/> Rafting |
| <input type="checkbox"/> Hunting | <input type="checkbox"/> Trapping | <input type="checkbox"/> Fishing | <input checked="" type="checkbox"/> None of the above | <input type="checkbox"/> Other: |
| Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.) | | | | |

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

| | | | | |
|--|--------------------------------------|--|--|---|
| <input type="checkbox"/> City/county parks | <input type="checkbox"/> Playgrounds | <input type="checkbox"/> MDC conservation lands | <input type="checkbox"/> Urban areas | <input type="checkbox"/> Campgrounds |
| <input type="checkbox"/> Boating accesses | <input type="checkbox"/> State parks | <input type="checkbox"/> National forests | <input type="checkbox"/> Nature trails | <input type="checkbox"/> Stairs/walkway |
| <input type="checkbox"/> No trespass sign | <input type="checkbox"/> Fence | <input checked="" type="checkbox"/> Steep slopes | <input type="checkbox"/> None of the above | <input type="checkbox"/> Other: |
| Comments: <u>pic# 602-7-1012</u> | | | | |

WBID# 602
Site# 7

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Indications of Human Use*: (attach photos)

| | | | | | |
|---|--|--|---|---|--|
| <input checked="" type="checkbox"/> Roads | <input type="checkbox"/> Rope swings | <input type="checkbox"/> Foot paths/prints | <input type="checkbox"/> Dock/platform | <input type="checkbox"/> Livestock Watering | <input type="checkbox"/> RV / ATV Tracks |
| <input type="checkbox"/> Camping Sites | <input type="checkbox"/> Fire pit/ring | <input type="checkbox"/> NPDES Discharge | <input type="checkbox"/> Fishing Tackle | <input type="checkbox"/> Other: | |
| Comments: <u>pic# 602-7-1011</u> | | | | | |

Stream Morphology:

Upstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

| Channel Feature | Transect (#) | Distance from access (m) | Width (m) | Length (m) | Median Depth (m) | Max. Depth (m) |
|-----------------|--------------|--------------------------|-----------|------------|------------------|----------------|
| RIFFLE | | | | | | |
| RUN | | | | | | |
| POOL | | | | | | |

Downstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

| Channel Feature | Distance from access (m) | Width (m) | Length (m) | Median Depth (m) | Max. Depth (m) |
|-----------------|--------------------------|-----------|------------|------------------|----------------|
| RIFFLE | | | | | |
| RUN | | | | | |
| POOL | | | | | |

Substrate*: (These values should add up to 100%.)

| | | | | | | | | | | |
|----------|----------|----------|-----------|--------|----------|--------|-----------|------------|--|-----------|
| % Cobble | <u>5</u> | % Gravel | <u>80</u> | % Sand | <u>5</u> | % Silt | <u>10</u> | % Mud/Clay | | % Bedrock |
|----------|----------|----------|-----------|--------|----------|--------|-----------|------------|--|-----------|

Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

none

Water Characteristics*: (Mark all that apply.)

| | | | | | |
|---------------------------|--|--|--|--|--|
| ODOR: | <input type="checkbox"/> Sewage | <input type="checkbox"/> Musky | <input type="checkbox"/> Chemical | <input checked="" type="checkbox"/> None | <input type="checkbox"/> Other: |
| COLOR: | <input checked="" type="checkbox"/> Clear | <input type="checkbox"/> Green | <input type="checkbox"/> Gray | <input type="checkbox"/> Milky | <input checked="" type="checkbox"/> Other: <u>Brown (nontoxic)</u> |
| BOTTOM DEPOSIT: | <input checked="" type="checkbox"/> Sludge | <input checked="" type="checkbox"/> Solids | <input checked="" type="checkbox"/> Fine sediments | <input type="checkbox"/> None | <input type="checkbox"/> Other: |
| WATER SURFACE DEPOSITION: | <input type="checkbox"/> Oil | <input type="checkbox"/> Scum | <input type="checkbox"/> Foam | <input checked="" type="checkbox"/> None | <input type="checkbox"/> Other: |

Comments: Please attach any additional comments to this form.

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Surveyor's Signature: Jenny Thabert Date of Survey: 21 MAY 2007

Organization: AESolutions Position: Field Tech

MEC Recreational Use Attainability Analysis Field Survey Sheet

| MEC Recreational Use Attainability Analysis Field Survey Sheet | | Dissolved Oxygen | |
|--|---|---------------------------------------|-------------------|
| Waterbody ID: <u>602</u> | Site #: <u>602-7</u> (WBID_Site#) | Date: <u>21 MAY 2007</u> | Time: <u>1330</u> |
| Estimated Channel Incision: <u>5</u> (m) (height between low bank width and water) | | Dissolved Oxygen: <u>6.92</u> (mg/L) | |
| GPS Location (taken at transect 1): | | Dissolved Oxygen: <u>78.3</u> (% sat) | |
| UTM X: <u>0493836</u> | UTM Y: <u>4409904</u> | Specific Cond: <u>332.7</u> (µS/cm) | |
| Horizontal Accuracy Estimate (GPS Data Quality): <u>+/- 17</u> (feet) | | Water Temperature: <u>21.6</u> (°C) | |
| Average Stream Width: <u>4.5</u> (meters) | Length of Survey Segment: <u>150</u> (meters) (20x average stream width) | | |
| Field Staff: <u>JRH & TAH</u> | | | |

Transect Cross-Section

| | | 01 | | 02 | | 03 | | 04 | | 05 | | 06 | | 07 | | 08 | | 09 | | 10 | | 11 | |
|-----------------------------------|--|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|
| Measurement | | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) | Distance (m) | Depth (m) |
| 1 | | 0.5 | 0.1 | 0.8 | 0.1 | 0 | <0.1 | 0 | <0.1 | 0.2 | 0.1 | 0.2 | 0.1 | 0.3 | 0.1 | 0.2 | 0.1 | 0.1 | 0.1 | 1.5 | 0.1 | 0.4 | 0.1 |
| 2 | | 0.9 | 0.1 | 1.1 | <0.1 | 0.5 | | 0.2 | | 0.4 | 0.2 | 0.4 | 0.1 | 0.6 | 0.2 | 0.4 | 0.1 | 0.5 | 0.2 | 1.7 | 0.1 | 0.6 | 0.1 |
| 3 | | 1.3 | 0.2 | 1.4 | 0.1 | 1.0 | | 0.4 | | 0.6 | 0.2 | 0.6 | 0.2 | 0.9 | 0.2 | 0.6 | 0.1 | 0.9 | 0.2 | 1.9 | 0.2 | 0.8 | 0.1 |
| 4 | | 1.7 | 0.3 | 1.7 | 0.2 | 1.5 | | 0.6 | | 0.8 | 0.3 | 0.8 | 0.1 | 1.2 | 0.1 | 0.8 | 0.2 | 1.3 | 0.3 | 2.1 | 0.2 | 1.0 | 0.2 |
| 5 | | 2.1 | 0.4 | 2.0 | 0.2 | 2.0 | | 0.8 | | 1.0 | 0.4 | 1.0 | 0.1 | 1.5 | 0.1 | 1.0 | 0.2 | 1.7 | 0.3 | 2.3 | 0.3 | 1.2 | 0.3 |
| 6 | | 2.5 | 0.4 | 2.3 | 0.3 | 2.5 | | 1.0 | | 1.2 | 0.3 | 1.2 | 0.1 | 1.8 | 0.1 | 1.2 | 0.2 | 2.1 | 0.3 | 2.5 | 0.3 | 1.4 | 0.3 |
| 7 | | 2.9 | 0.3 | 2.6 | 0.2 | 3.0 | | 1.2 | | 1.4 | 0.3 | 1.4 | 0.1 | 2.1 | 0.1 | 1.4 | 0.1 | 2.5 | 0.2 | 2.7 | 0.3 | 1.6 | 0.3 |
| 8 | | 3.3 | 0.2 | 2.9 | 0.3 | 3.5 | | 1.4 | 0.1 | 1.6 | 0.3 | 1.6 | 0.1 | 2.4 | 0.2 | 1.6 | | 2.9 | 0.2 | 2.9 | 0.2 | 1.8 | 0.2 |
| 9 | | 3.7 | 0.2 | 3.2 | 0.3 | 4.0 | | 1.6 | 0.1 | 1.8 | 0.2 | 1.8 | 0.1 | 2.7 | 0.2 | 1.8 | | 3.3 | 0.2 | 3.1 | 0.1 | 2.0 | 0.2 |
| 10 | | 4.1 | 0.1 | 3.5 | 0.2 | 4.5 | | 1.8 | <0.1 | 2.0 | 0.1 | 2.0 | 0.1 | 3.0 | 0.1 | 2.0 | | 3.7 | 0.2 | 3.3 | 0.1 | 2.2 | 0.1 |
| 11 | | 4.5 | 0.1 | 3.8 | 0.1 | 5.0 | | 2.0 | <0.1 | 2.2 | 0.1 | 2.2 | 0.1 | 3.3 | 0.1 | 2.2 | | 4.1 | 0.1 | 3.5 | 0.1 | 2.4 | 0.1 |
| 12 | | 5.2 | 0 | 4.1 | 0 | 5.3 | 0 | 2.5 | 0 | 2.5 | 0 | 5.6 | 0 | 4.2 | 0 | 3.1 | 0 | 4.5 | 0 | 4.0 | 0 | 3.2 | 0 |
| Feature Type (rifle run, or pool) | | pool | | run | | run | | run | | run | | run | | run | | run | | pool | | run | | run | |

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.

GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.

Transects in order of up to downstream.

Mark dry depth measurements as 0; measurements less than 0.1m as <0.1; and greater than 1m as >1

Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed: Jerry Harbitt Date: 21 MAY 2007
BNC 5-23-07
CHK 5/24/07

WBID# 602
Site# 8

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

| | |
|--|---|
| Date & Time: <u>21 MAY 2007 1415</u> | Site Location Description (e.g., road crossing): <u>downstream of Iva Rd, Crossing</u> |
| Personnel (Data Collectors): <u>JRH + TAH</u> | |
| Current Weather Conditions: <u>Sunny 85°F</u> | Facility Name: <u>PSF, SOUTH MEADOWS FINISH</u> |
| | Permit Number: <u>MO 0118737</u> |
| Weather Conditions for Past 10 days: <u>UNKNOWN</u> | |
| Drought Conditions?: No drought <input type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input checked="" type="checkbox"/> | |

Site Locations:

| LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS) | | | |
|---|-------------------------------------|--|-------------------------------------|
| Site GPS Coordinates: UTM X: <u>15 S 0494173</u> | | Y: <u>4406673</u> | |
| HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.) | | | |
| Global Positioning System (GPS) | | Interpolation | |
| Static Mode | <input checked="" type="checkbox"/> | Topographic Map or DRG | <input checked="" type="checkbox"/> |
| Dynamic Mode (Kinematic) | <input checked="" type="checkbox"/> | Aerial Photograph or DOQQ | <input checked="" type="checkbox"/> |
| Precise Positioning Service | <input checked="" type="checkbox"/> | Satellite Imagery | <input checked="" type="checkbox"/> |
| Signal Averaging | <input checked="" type="checkbox"/> | Interpolation Other | <input checked="" type="checkbox"/> |
| Real Time Differential Processing | <input checked="" type="checkbox"/> | | |
| HORIZONTAL ACCURACY ESTIMATE | | | |
| GPS Data Quality | | Interpolation Data Quality | |
| FOM | ± _____ Meters | Source Map Scale: 1:24,000 1:100,000 Other _____ | |
| EPE | ± <u>23</u> Feet or ± _____ Meters | ± _____ Feet or ± _____ Meters | |
| PDOP | _____ | | |

Photos:

| Photo ID# (WBID_Site#_###) | Photo Purpose and Direction (upstream, downstream, other) | Photo ID# (WBID_Site#_###) | Photo Purpose and Direction (upstream, downstream, other) |
|-------------------------------|--|-------------------------------|--|
| <u>602-8-1013</u> | <u>up</u> | <u>602-8-1017</u> | <u>trash downstream of bridge</u> |
| <u>602-8-1014</u> | <u>down</u> | | |
| <u>602-8-1015</u> | <u>Iva Rd Bridge</u> | | |
| <u>602-8-1016</u> | <u>Slope (downstream of bridge)</u> | | |

Uses Observed*: (Uses actually observed at time of survey.)

| | | | | |
|--|--------------------------------------|---------------------------------------|---|---------------------------------------|
| <input type="checkbox"/> Swimming | <input type="checkbox"/> Skin diving | <input type="checkbox"/> SCUBA diving | <input type="checkbox"/> Tubing | <input type="checkbox"/> Water skiing |
| <input type="checkbox"/> Wind surfing | <input type="checkbox"/> Kayaking | <input type="checkbox"/> Boating | <input type="checkbox"/> Wading | <input type="checkbox"/> Rafting |
| <input type="checkbox"/> Hunting | <input type="checkbox"/> Trapping | <input type="checkbox"/> Fishing | <input checked="" type="checkbox"/> None of the above | <input type="checkbox"/> Other: |
| Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.) | | | | |

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

| | | | | |
|--|--------------------------------------|--|--|---|
| <input type="checkbox"/> City/county parks | <input type="checkbox"/> Playgrounds | <input type="checkbox"/> MDC conservation lands | <input type="checkbox"/> Urban areas | <input type="checkbox"/> Campgrounds |
| <input type="checkbox"/> Boating accesses | <input type="checkbox"/> State parks | <input type="checkbox"/> National forests | <input type="checkbox"/> Nature trails | <input type="checkbox"/> Stairs/walkway |
| <input type="checkbox"/> No trespass sign | <input type="checkbox"/> Fence | <input checked="" type="checkbox"/> Steep slopes | <input type="checkbox"/> None of the above | <input type="checkbox"/> Other: |
| Comments: <u>pic # 602-8-1016</u> | | | | |

WBID# 602
Site# 8

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Indications of Human Use*: (attach photos)

| | | | | | |
|---|--|--|---|---|--|
| <input checked="" type="checkbox"/> Roads | <input type="checkbox"/> Rope swings | <input type="checkbox"/> Foot paths/prints | <input type="checkbox"/> Dock/platform | <input type="checkbox"/> Livestock Watering | <input type="checkbox"/> RV / ATV Tracks |
| <input type="checkbox"/> Camping Sites | <input type="checkbox"/> Fire pit/ring | <input type="checkbox"/> NPDES Discharge | <input type="checkbox"/> Fishing Tackle | <input checked="" type="checkbox"/> Other: <u>trash</u> | |
| Comments: <u>pic # 602-8-1015 1va Rd crossing # 602-8-1017 trash (downstream of Bridge)</u> | | | | | |

Stream Morphology:

Upstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

| Channel Feature | Transect (#) | Distance from access (m) | Width (m) | Length (m) | Median Depth (m) | Max. Depth (m) |
|-----------------|--------------|--------------------------|-----------|------------|------------------|----------------|
| RIFFLE | | | | | | |
| RUN | | | | | | |
| POOL | | | | | | |

Downstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

| Channel Feature | Distance from access (m) | Width (m) | Length (m) | Median Depth (m) | Max. Depth (m) |
|-----------------|--------------------------|-----------|------------|------------------|----------------|
| RIFFLE | | | | | |
| RUN | | | | | |
| POOL | | | | | |

Substrate*: (These values should add up to 100%.)

| | | | | | |
|-------------------|-------------------|------------------|-----------------|----------------------|--------------------|
| <u>—</u> % Cobble | <u>5</u> % Gravel | <u>80</u> % Sand | <u>5</u> % Silt | <u>10</u> % Mud/Clay | <u>—</u> % Bedrock |
|-------------------|-------------------|------------------|-----------------|----------------------|--------------------|

Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

none

Water Characteristics*: (Mark all that apply.)

| | | | | | |
|---------------------------|--|---------------------------------|--|--|---|
| ODOR: | <input type="checkbox"/> Sewage | <input type="checkbox"/> Musky | <input type="checkbox"/> Chemical | <input checked="" type="checkbox"/> None | <input type="checkbox"/> Other: |
| COLOR: | <input type="checkbox"/> Clear | <input type="checkbox"/> Green | <input type="checkbox"/> Gray | <input type="checkbox"/> Milky | <input checked="" type="checkbox"/> Other: <u>Brown</u> |
| BOTTOM DEPOSIT: | <input checked="" type="checkbox"/> Sludge | <input type="checkbox"/> Solids | <input checked="" type="checkbox"/> Fine sediments | <input type="checkbox"/> None | <input type="checkbox"/> Other: |
| WATER SURFACE DEPOSITION: | <input type="checkbox"/> Oil | <input type="checkbox"/> Scum | <input type="checkbox"/> Foam | <input checked="" type="checkbox"/> None | <input type="checkbox"/> Other: |

Comments: Please attach any additional comments to this form.

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Surveyor's Signature: Jenny Thabert Date of Survey: 21 MAY 2007
Organization: AE Solutions Position: Field Tech

012 5-23-07
AK 5/24/07

| | | | | | |
|--|--|--|--|---|-------------------|
| Waterbody ID: <u>602</u> | | Site #: <u>602-8</u> (WBID_Site#) | | Dissolved Oxygen | |
| Estimated Channel Incision: <u>4</u> (m) (height between low bank width and water) | | GPS Location (taken at transect 1): UTM X: <u>0494173</u> UTM Y: <u>4406673</u> | | Date: <u>21 MAY 2007</u> | Time: <u>1415</u> |
| Horizontal Accuracy Estimate (GPS Data Quality): +/- <u>23</u> (feet) | | | | Dissolved Oxygen: <u>6.46</u> (mg/L) | |
| Average Stream Width: <u>6.5</u> (meters) | | Length of Survey Segment: <u>150</u> (meters) (20x average stream width) | | Dissolved Oxygen: <u>72.9</u> (% sat) | |
| Field Staff: <u>JRH + TAH</u> | | | | Specific Cond: <u>333.3</u> ($\mu\text{S}/\text{cm}$) | |
| | | | | Water Temperature: <u>22.7</u> ($^{\circ}\text{C}$) | |

[illegible]

Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed: Jenny Thab Date: 21 MAY 2007
guc 5-23-07
AK 5/24/07

WBID# 602



Site# 1 Photo ID# 602-1-984, Downstream



Site# 1 Photo ID# 602-1-985, Upstream



Site# 1 Photo ID# 602-1-986, Hollow Rd. crossing



Site# 1 Photo ID# 602-1-987, Steep slope

WBID# 602



Site# 2 Photo ID# 602-2-988, Upstream



Site# 2 Photo ID# 602-2-989, Downstream



Site# 2 Photo ID# 602-2-990, Bridge



Site# 2 Photo ID# 602-2-991, Steep slope

WBID# 602



Site# 3 Photo ID# 602-3-992, Upstream



Site# 3 Photo ID# 602-3-993, Downstream



Site# 3 Photo ID# 602-3-994, Hill Rd Crossing



Site# 3 Photo ID# 602-3-995, Steep slope

WBID# 602



Site# 4 Photo ID# 602-4-996, Upstream



Site# 4 Photo ID# 602-4-997, Downstream



Site# 4 Photo ID# 602-4-998, Hyde Rd Bridge



Site# 4 Photo ID# 602-4-999, Slope downstream

WBID# 602



Site# 5 Photo ID# 602-5-1001, Upstream



Site# 5 Photo ID# 602-5-1002, Downstream



Site# 5 Photo ID# 602-5-1003, Hacker Rd crossing



Site# 5 Photo ID# 602-5-1004, Steep slope

WBID# 602



Site# 6 Photo ID# 602-6-1005, Upstream



Site# 6 Photo ID# 602-6-1006, Downstream



Site# 6 Photo ID# 602-6-1007, Hwy M bridge



Site# 6 Photo ID# 602-6-1008, Slope downstream

WBID# 602



Site# 7 Photo ID# 602-7-1009, Upstream



Site# 7 Photo ID# 602-7-1010, Downstream



Site# 7 Photo ID# 602-7-1011, Bridge



Site# 7 Photo ID# 602-7-1012, Slope downstream

WBID# 602



Site# 8 Photo ID# 602-8-1013, Upstream



Site# 8 Photo ID# 602-8-1014, Downstream



Site# 8 Photo ID# 602-8-1015, Iva Rd bridge



Site# 8 Photo ID# 602-8-1016, Slope downstream

WBID# 602



Site# 8 Photo ID# 602-8-1017, Trash